



**International Cotton Conference:
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Production of quality seed-cotton in West and Central Africa

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Production of quality seed-cotton: the actors concerned

- Research organisms
- Seed services
- Certifiers
- Services of follow-up and support for farmers
- Management advisers
- Heads of village associations
- Farmers
- Heads of ginning factories
- Seed-cotton conditioning agents
- Marketing services
- ...

Production of quality seed-cotton: 3 main stages

1. Production of quality seeds
2. Crop management and fibre quality
3. Organization of the primary marketing

Production of quality seed-cotton: 3 main stages

1. Production of quality seeds

- Categories of seeds
- Seed multiplication scheme
- Norms of production
- Technical precautions regarding the production
- Technical precautions regarding the produce of the harvest
- Quality control and seeds certification

Production of quality seed-cotton: production of quality seeds

The objectives of seed multiplication

- To preserve the whole characteristics of the varieties created by the breeders
- To multiply and to distribute the varieties (technical innovations) to the farmers

Production of quality seed-cotton: production of quality seeds

The categories of seeds

| Name | Codification | Description | Label |
|--|--------------------|-----------------------------------|----------------------|
| Mother seeds (matériel de départ) | G0 | Line, bulk... (breeder's seed) | White purple-crossed |
| Foundation seeds (semences de pré-base) | G1 à G2 (ou G3) | | White purple-crossed |
| Certified seeds (semences de base) | G3 ou G4 | | White |
| Registered seeds (semences certifiées) | R1 | 1st reproduction | Blue |
| | R2 | 2nd reproduction | Red |

Production of quality seed-cotton: production of quality seeds

Technical precautions regarding the produce of the harvest

- **Collection** (transfert field → ginning plant)
 - Calendar, storage area, identification...
- **Seed-cotton storage at the ginning plant**
 - Temporary, prior cleaning, batches separation...
- **Ginning**
 - Calendar, cleaning, state and settings of the machines
 - By variety and by category (from G1 to R2), in 1 time
- **Delinting** (optional)
- **Seeds conditioning**
 - Cleaning, screening, calibration, pesticide treatment, weighing, bagging, labelling and bags closing
- **Seeds storage**
 - State of the seeds and ambient conditions (t° and RH)

Production of quality seed-cotton: production of quality seeds

Quality control and seeds certification

- **Sampling**
 - Conditions, identification
- **Laboratory analysis** (norms *Int. Seed Testing Assoc.*)
 - Germination ability, water content, specific purity, sanitary state...
- **Certification**
 - Respect of certification norms, marking (label, bag)

Production of quality seed-cotton: 3 main stages

1. Production of quality seeds

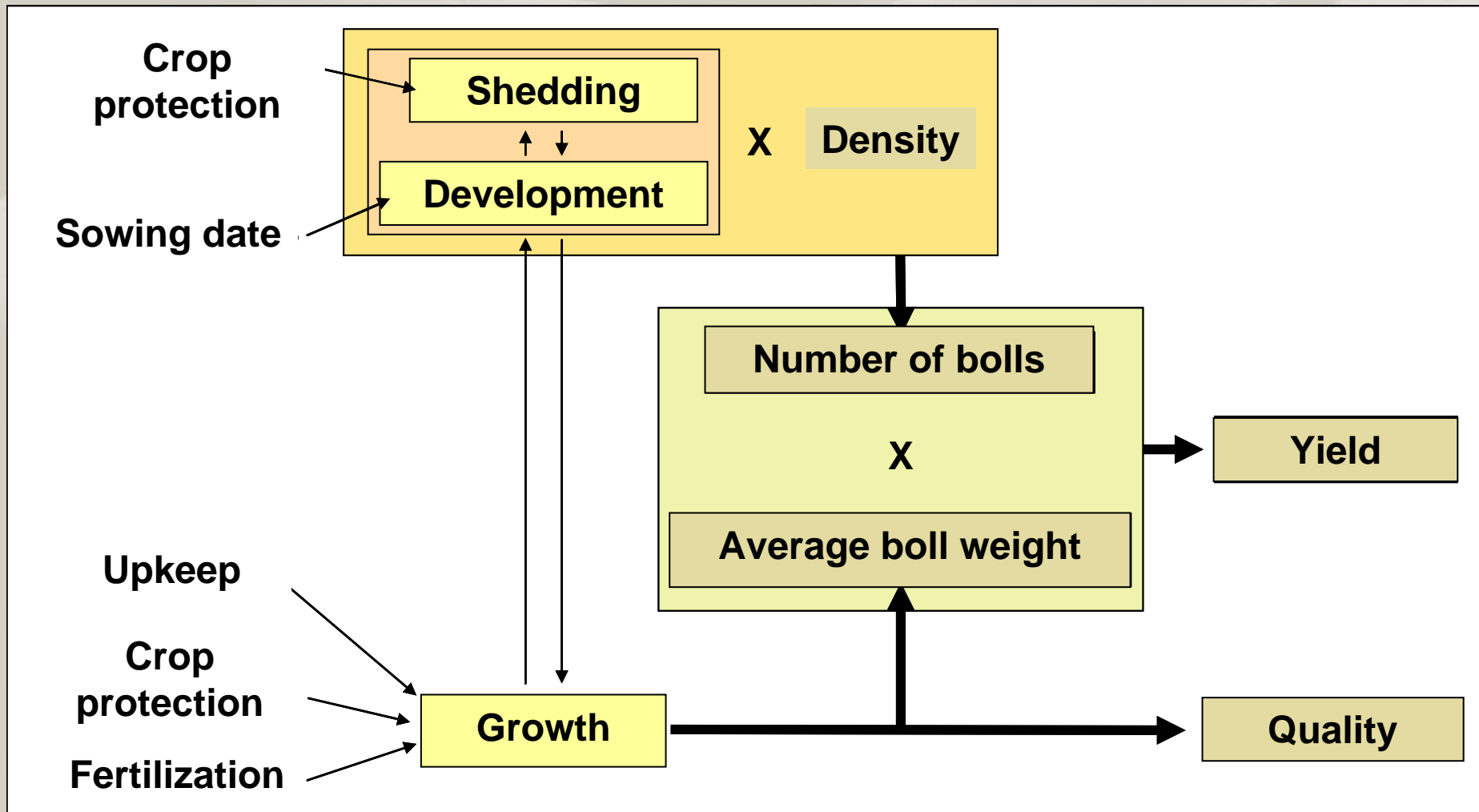
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2. Crop management and fibre quality

- fibre quality: result of the expression of the potential of a variety
- Quality at the boll stage
- Quality at the plant and the field stages
- Cultivation technics to produce quality cotton
- The key points for a quality cotton production

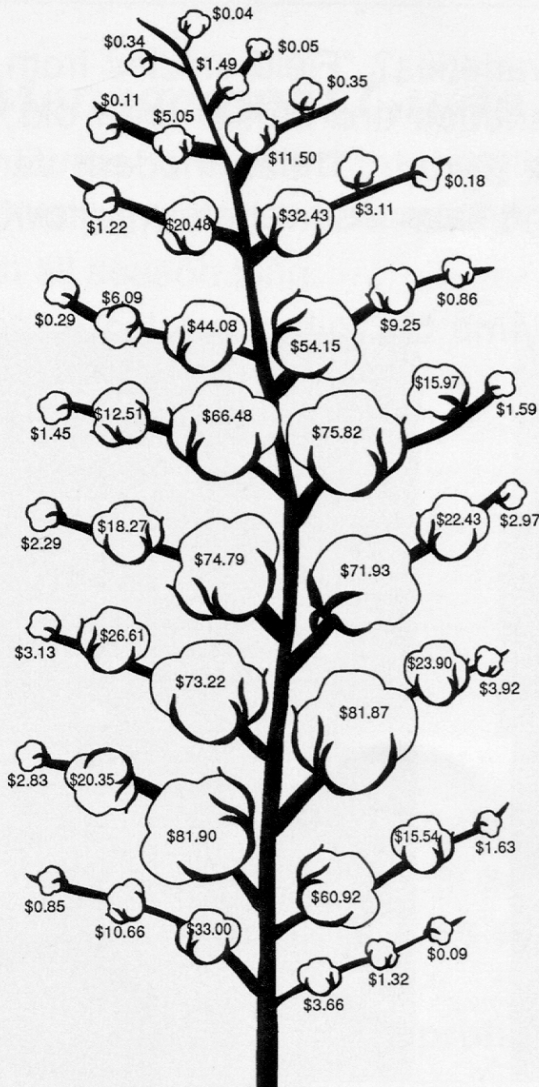
Production of quality seed-cotton: crop management and fibre quality

Fibre quality = expression of the potentiel of a cotton variety



Production of quality seed-cotton: crop management and fibre quality

Quality at the boll level



Source Cotton Farming 1997

- **Each boll has its history**

- Trophic conditions (minerals, water)
- Environmental conditions (t° , radiation, pests...)

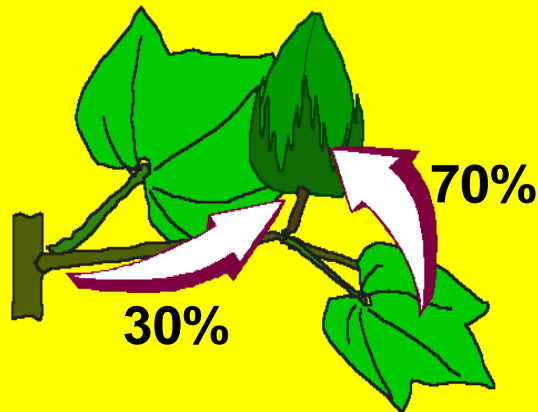
- **Each boll has a value**

- ABW (average boll weight)
- % fibre
- Technological characteristics

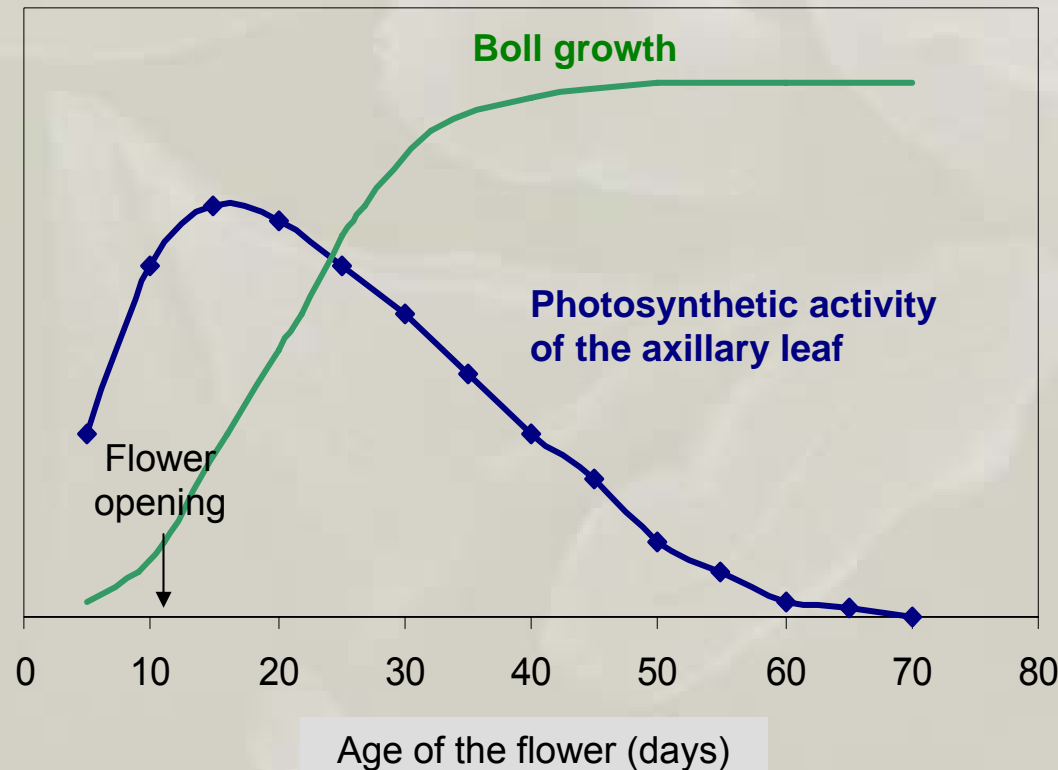
Production of quality seed-cotton: crop management and fibre quality

Quality at the boll level

- The « boll / axillary leaf » system determines the average boll weight



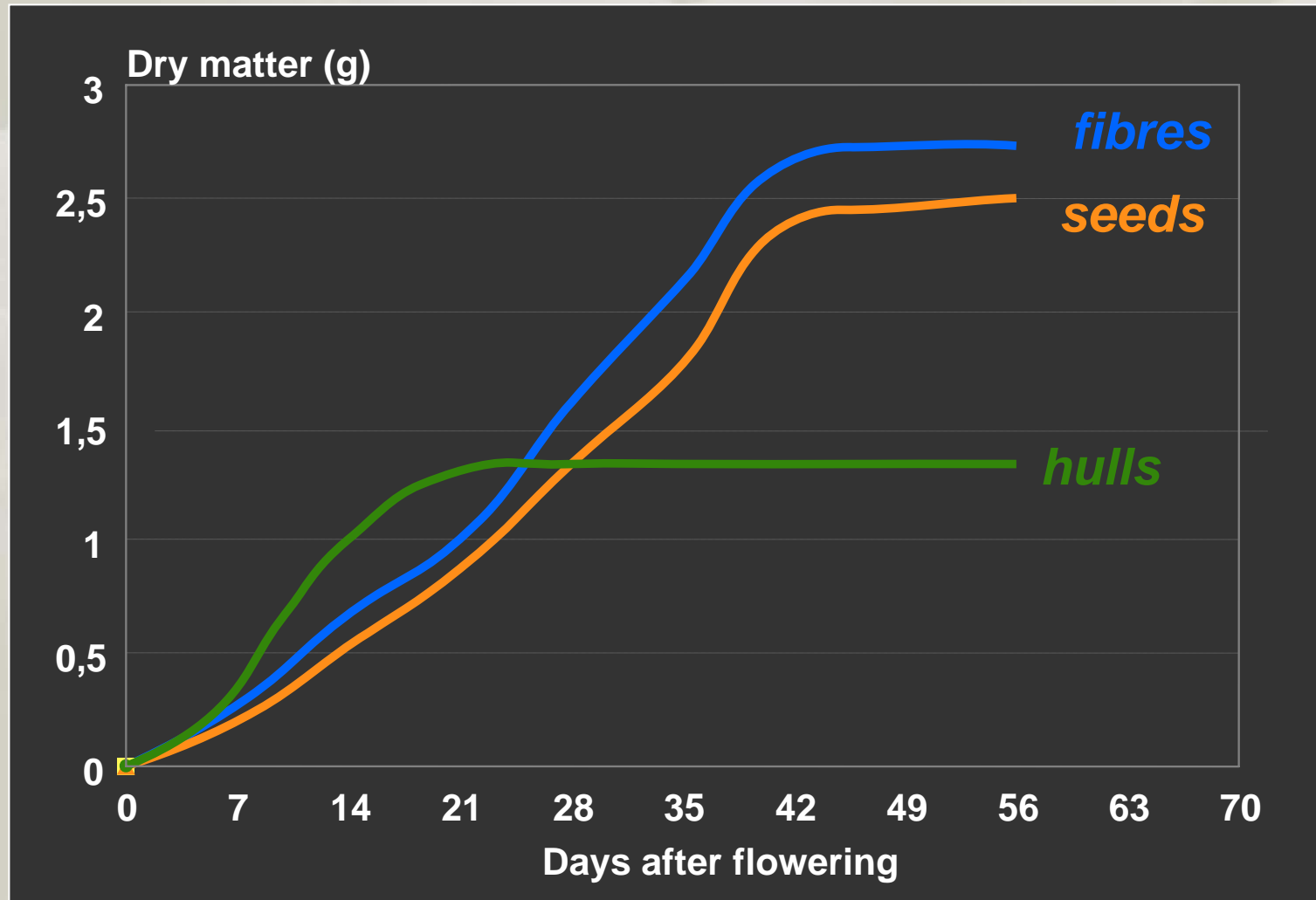
Sources of carbohydrates



Production of quality seed-cotton: crop management and fibre quality

Quality at the boll level

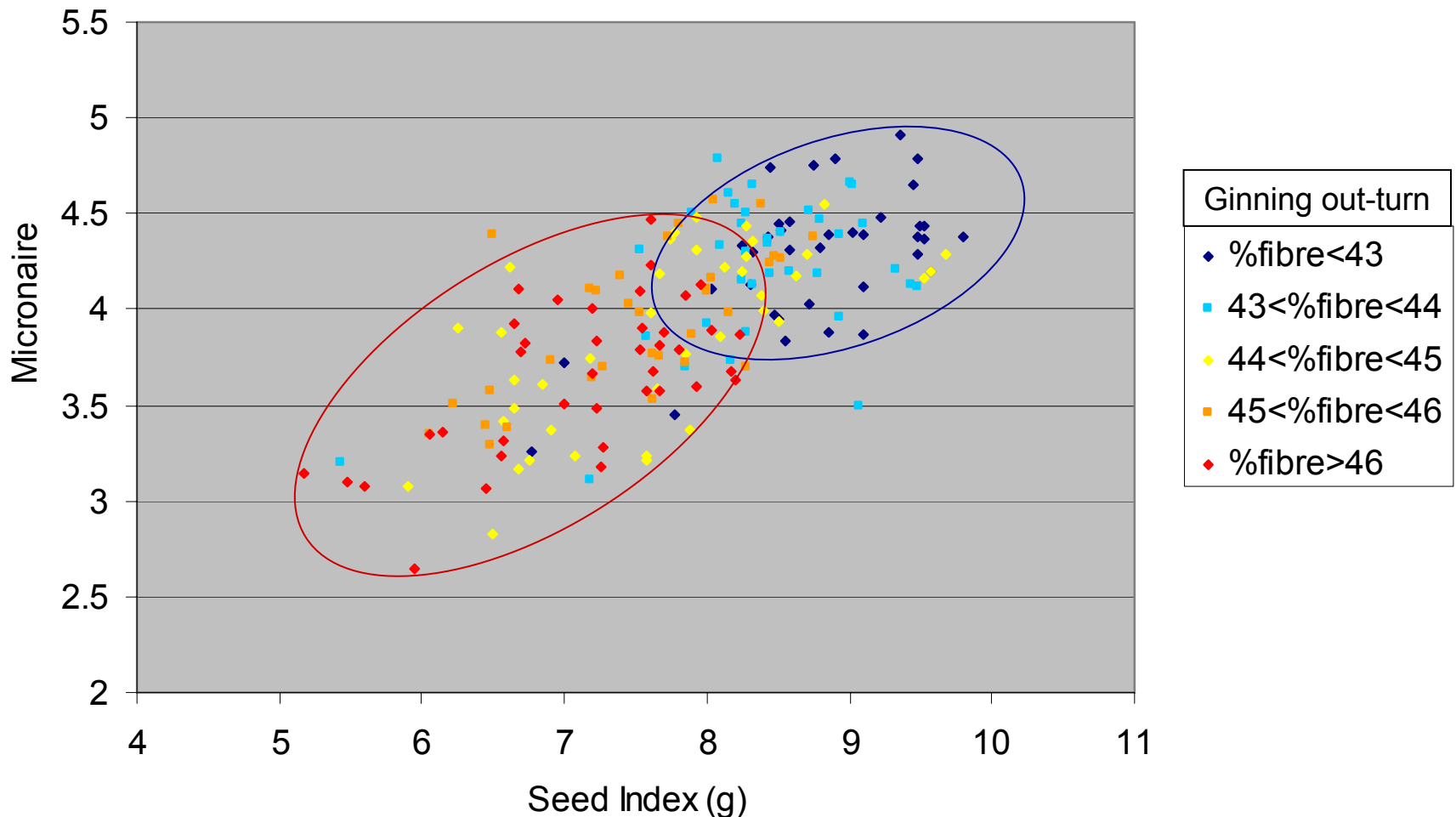
- The components of the average boll weight



Production of quality seed-cotton: crop management and fibre quality

Quality at the boll level

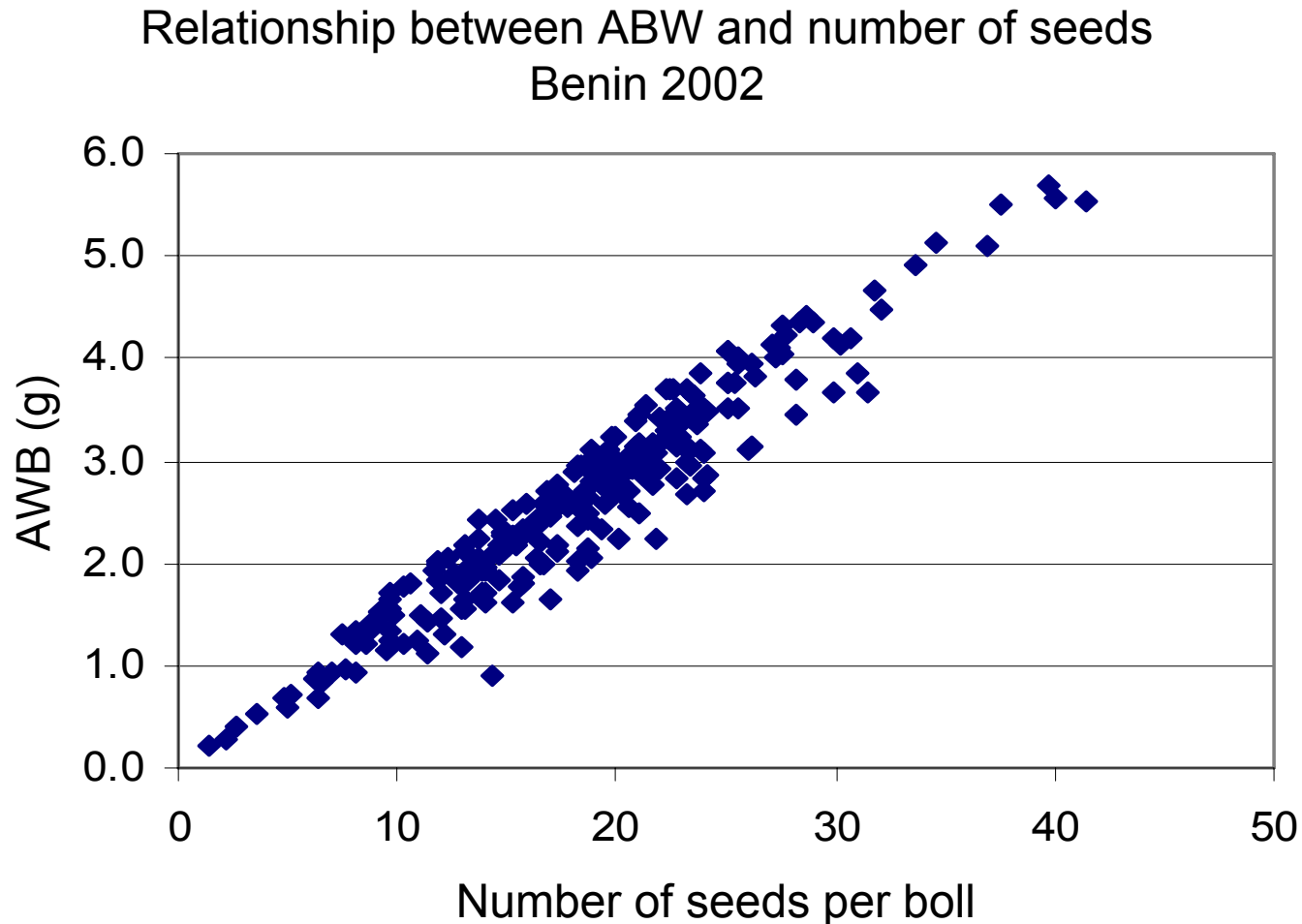
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Production of quality seed-cotton: crop management and fibre quality

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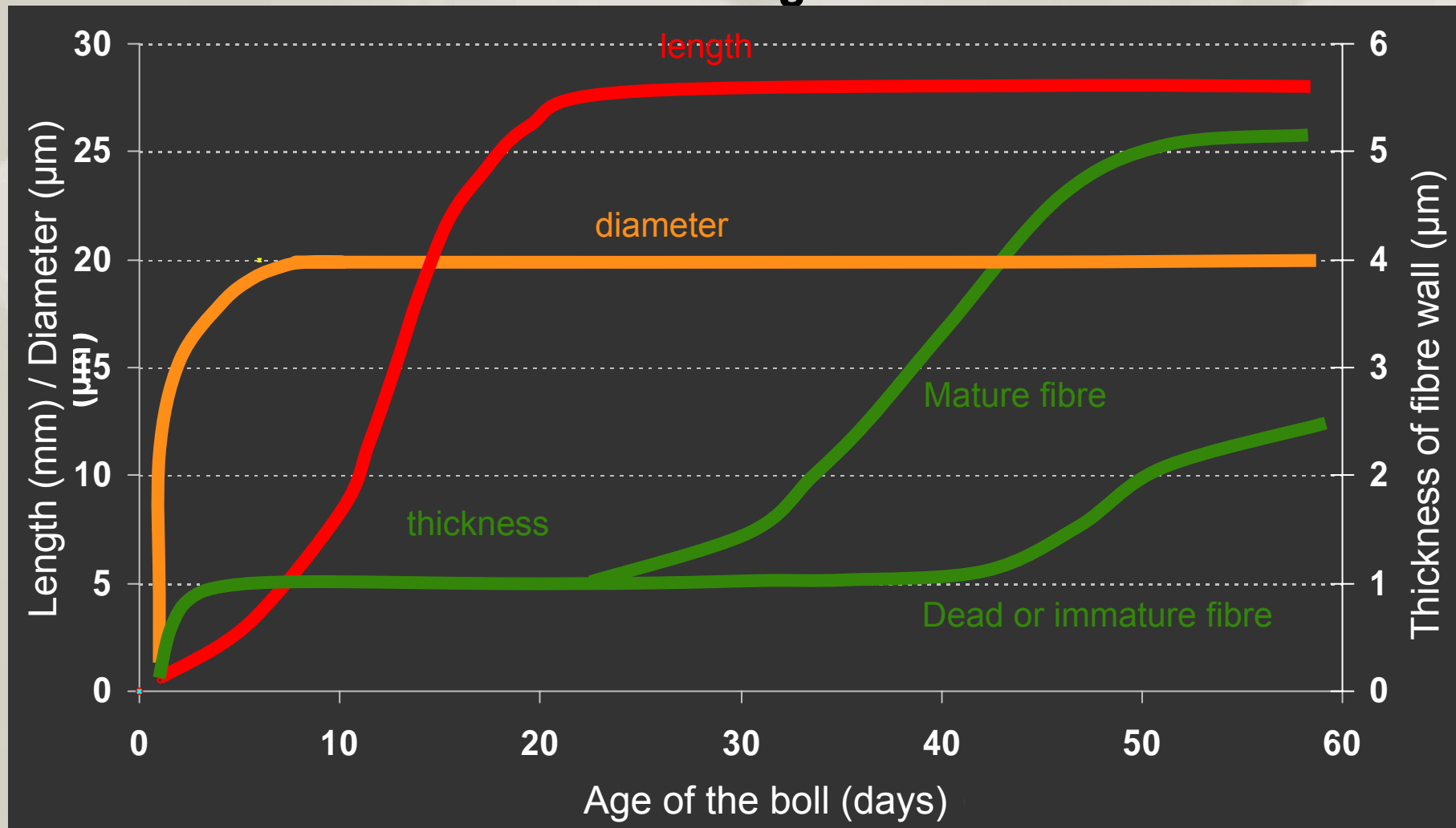
- **The components of the average boll weight**



Production of quality seed-cotton: crop management and fibre quality

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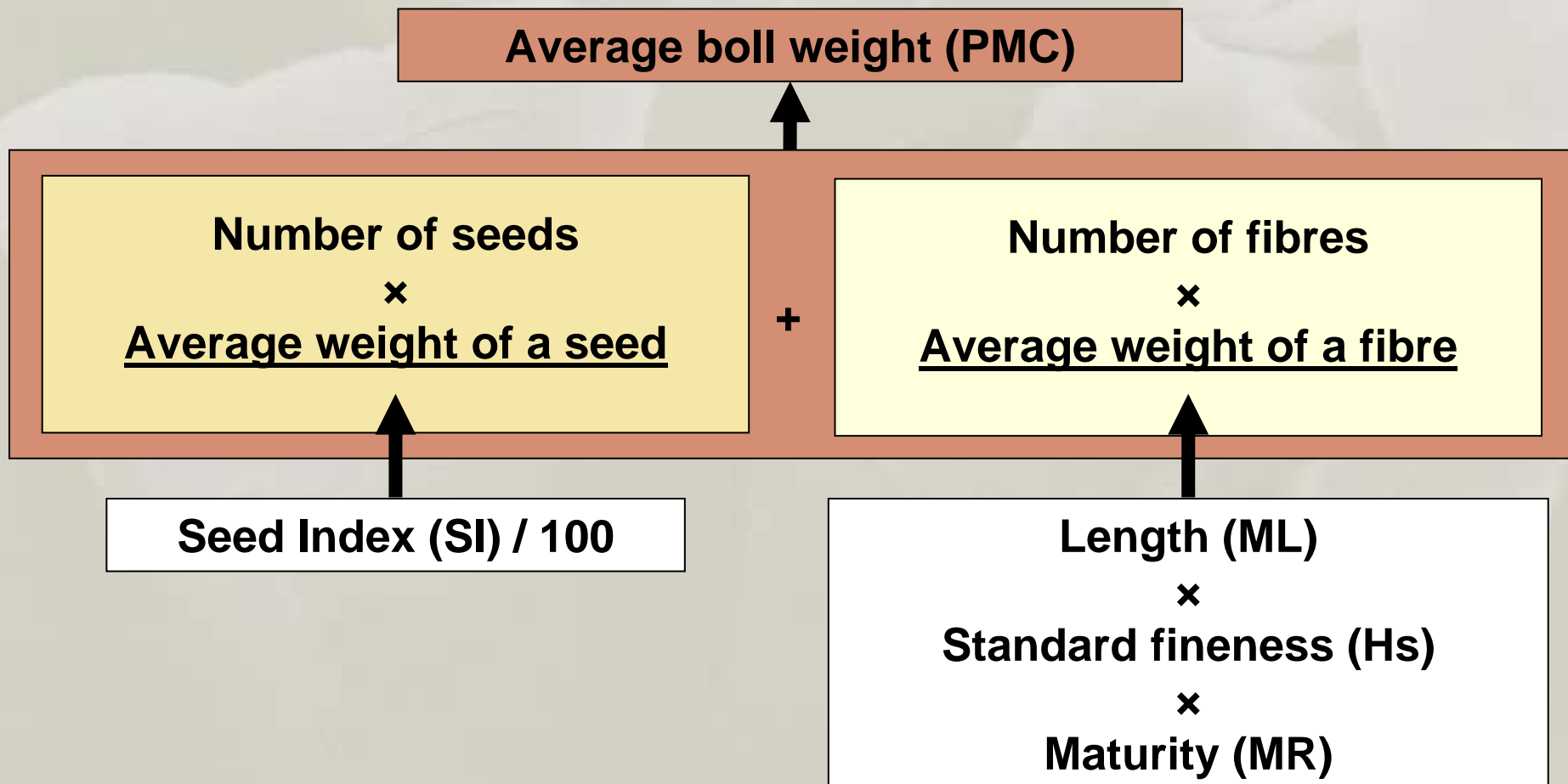
- Elaboration of the technological characteristics of fibre



Production of quality seed-cotton: crop management and fibre quality

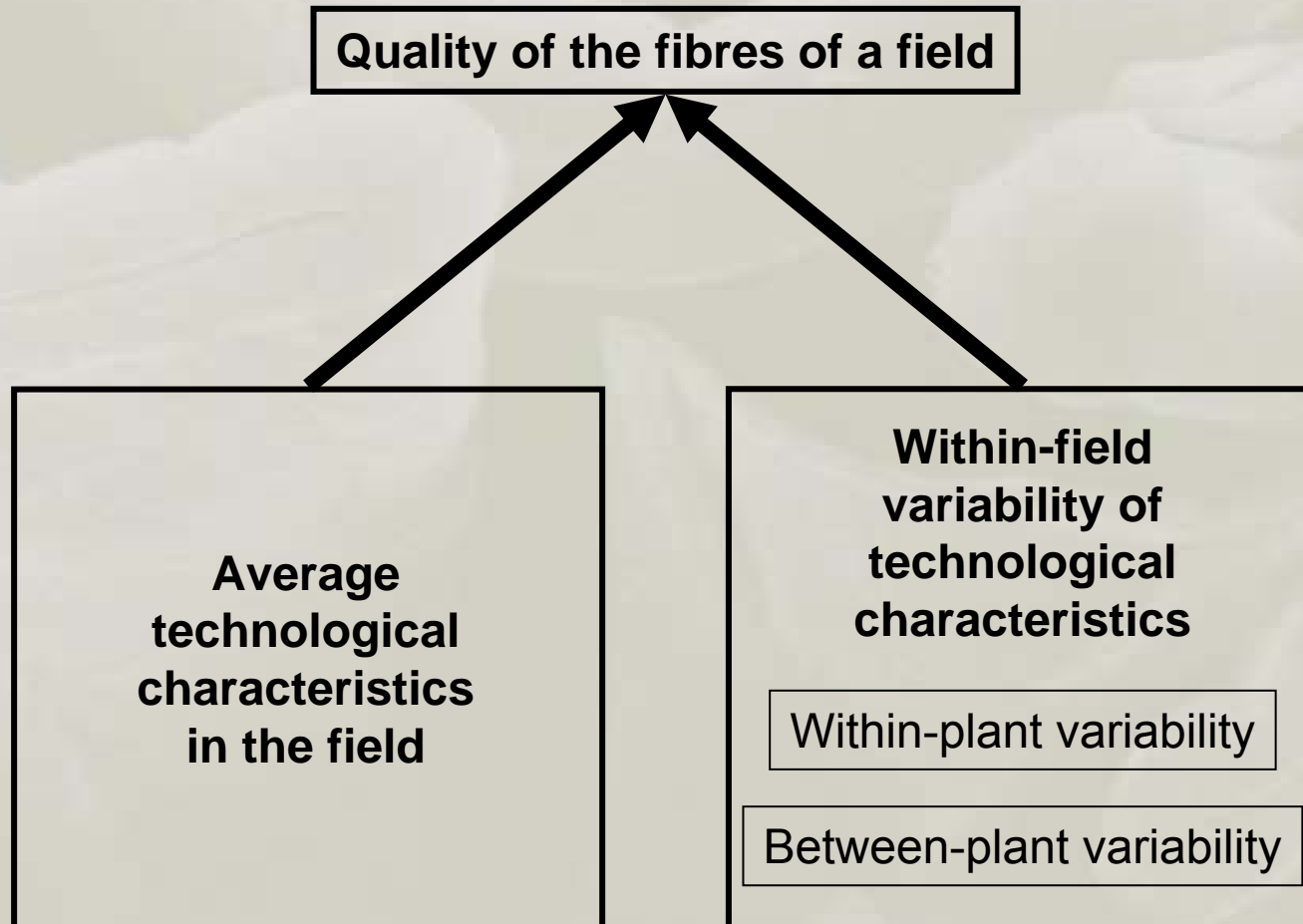
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Production of quality seed-cotton: crop management and fibre quality

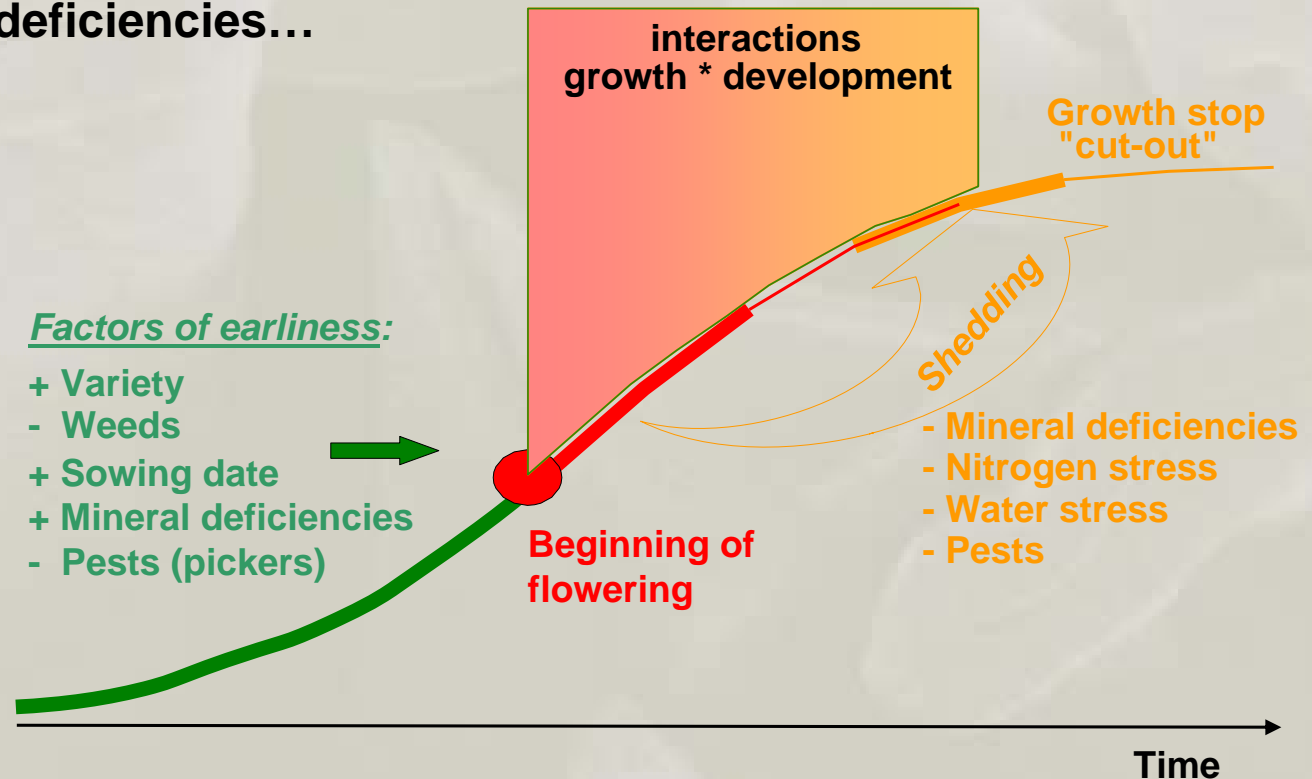
Quality at the plant and at the field levels



Production of quality seed-cotton: crop management and fibre quality

Quality at the plant and at the field levels

- Precocity of the cultivation cycle
 - Variety
 - Sum of average daily temperatures
 - Sowing date
 - Mineral deficiencies...



Production of quality seed-cotton: crop management and fibre quality

Quality at the plant and at the field levels

- **Precocity of the cultivation cycle**
- **Precocity and varietal factor**
 - **Date of 1st flower (Days After Emergence)**
 - **Date of 1st boll opening (DAE)**
 - **Rythm of flowering**
 - **Allocation of carbohydrates (bolls / other organs)**
 - **Physiological shedding**
 - **1st harvest (50% boll opening) / total harvest**

Production of quality seed-cotton: crop management and fibre quality

Quality at the plant and at the field levels

- Precocity of the cultivation cycle
- Precocity and varietal factor
- **Split harvests and quality**

| Harvest (DAE) | ML (mm) | UHML (mm) | UI (%) | STR (g/tex) | ELO (%) | IM | MR | PM (%) | H (mtex) | Hs (mtex) | Rd (%) | +b |
|------------------|------------|--------------|-----------|----------------|------------|-----|------|-----------|-------------|--------------|-----------|------|
| H1 (110) | 26,1 | 30,4 | 85,8 | 32,5 | 6,4 | 3,8 | 0,85 | 75,4 | 162 | 191 | 74,7 | 11,1 |
| H2 (117) | 26,7 | 30,9 | 86,5 | 34,6 | 6,1 | 3,0 | 0,69 | 60,5 | 145 | 211 | 75,7 | 11,0 |
| H3 (124) | 25,9 | 30,3 | 85,6 | 34,3 | 5,6 | 2,6 | 0,61 | 51,8 | 135 | 225 | 76,3 | 10,6 |
| H4 (131) | 24,5 | 29,2 | 84,0 | 33,7 | 5,2 | 2,0 | 0,46 | 35,1 | 124 | 270 | 75,6 | 10,2 |

Production of quality seed-cotton: crop management and fibre quality

Cultivation technic for a production of quality cotton

- **Soil preparation**
 - If early: tillage
 - If late: scrapping and mulch
- **Varietal choice**
 - Compromise between potential (yield and quality) and precocity
 - Interaction variety / sowing date
- **Sowing**
 - Factor of homogeneity for the culture and for the technological characteristics
- **Upkeep**
 - Reduction of the competition with weeds → precocity

Production of quality seed-cotton: crop management and fibre quality

Cultivation technic for a production of quality cotton

- **Fertilization (mineral and/or organic)**
 - Nitrogen ↘ gining out-turn
 - Potassium ↗ quality (length, strength, fineness)
- **Crop protection**
 - To avoid diversion of sap flow and/or direct damages to fibre
- **Harvest**
 - Split (in time), with 2 bags (good / low quality) made of cotton (PP prohibited)
 - Drying, screening, transport and domestic storage

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3. Organization of the primary marketing

- Harvest storage and screening
- Seed-cotton marketing and transport

Production of quality seed-cotton: organisation of the primary marketing

Harvest storage and screening

- **First choice**

- White, screened, dry, without spots, « orange quarters », stems, bracts, green or closed bolls, *etc.*

- **Second choice**

- White, non screened or spotted clean, without spots, « orange quarters », stems, bracts, green or closed bolls, *etc.*

- **Third choice**

- Screening residues: coloured, often immature and dirty.

Production of quality seed-cotton: organisation of the primary marketing

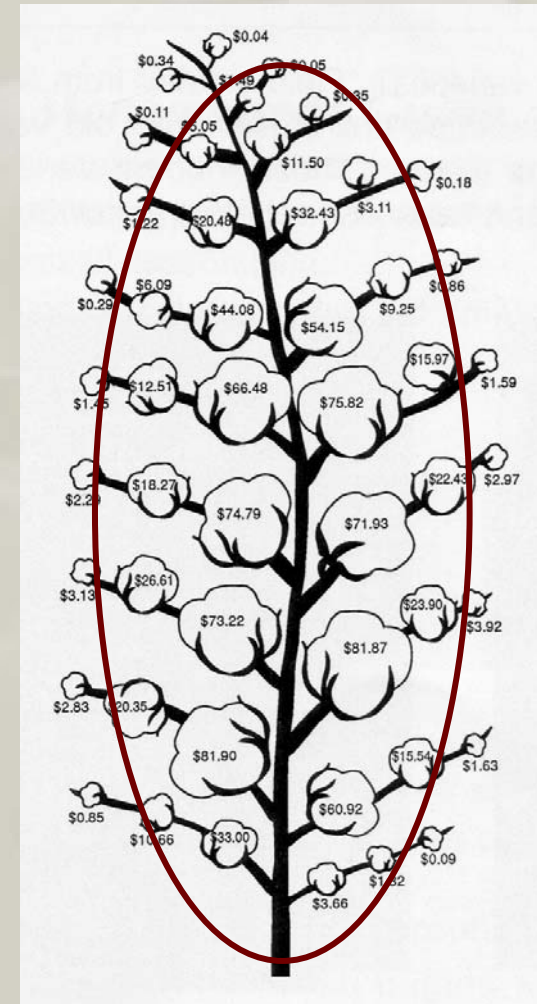
Seed-cotton marketing and transport

- **Constitution of batches of homogeneous seed-cotton**
- **Organisation of the purchasing market**
- **Priority to transport of 1st choice**
- **Covers on seed-cotton trailers...**

Production of quality seed-cotton: conclusion

Some key-points

- ✓ Choose a variety adapted to the growing conditions
- ✓ Control seed multiplication
- ✓ Protect bolls in position 1 et 2
- ✓ Promote bolls growth (plant density, nutrition, upkeep...)
- ✓ Promote a concentrated production (soil preparation, sowing, crop protection)
- ✓ Make early and split harvests
- ✓ Screen and protect the harvested seed-cotton



Le Manuel qualité pour les filières cotonnières UEMOA





Thank you for your attention